

# ***Town Milk***

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COVER PICTURE: A Friesian town milk herd on its way from the paddock to the evening milking.

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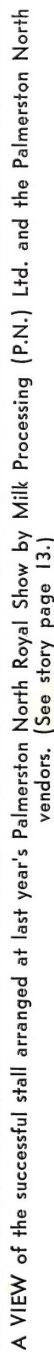


# MILK PROCESSING (P.N.)

1947

# THE

*Palmerston North & Feilding*





THE FOLLOWING is the text of the opening address given by Mr. L. V. Phillips, Chairman, New Zealand Milk Board, to the 26th Market Milk Conference, held at Massey University, Palmerston North, on 16th and 17th November, 1971.

## A Seed-bed For Ideas

Market Milk Week, now in its 26th year, held annually at this University under the joint sponsorship of Massey and the New Zealand Milk Board, has been a productive seed-bed for the germination of many progressive ideas in the town milk industry. However, I'm inclined to think that in its undisputed leadership towards the shorter working week, the two-day abbreviation which forms the programme of the present conference is stretching things a bit far.

I am here to add a welcome to all of you as a representative of one of the sponsoring partners, and to open the conference so that it can get into gear with a minimum of ceremony.

Sometimes I wonder what the University really thinks of us. Most of us come from the world of management, men and machines, and are not very typical of the student raw material which is moulded so effectively in this institution. However, we may have quite a useful function.

In the days of the cow-punching West, a travelling preacher riding the trails of Montana came upon an old rancher preparing his solitary meal in his dilapidated shack. He asked this forlorn specimen where the rest of his family was. It was a sad tale. His wife had been

caught shop-lifting in the down-town store, and had been locked up by the sheriff. The eldest son was in the state penitentiary on a forgery charge, and the second son was in worse trouble in Alcatraz. He had just shot up the occupants of the town drinking saloon. "Any other family?" asked the preacher. An emotion which could be taken for pride lit up the old fellow's face. "Yes, there's Wilbur," he said. "He's at Harvard." "That's great," said the preacher. "What's he studying?" "Studyin'?" came the reply. "He ain't studyin' nothin'. They're studyin' him." As I say, perhaps the University will find us an interesting addition to its research programme.

I'm not here with a mission to speculate on the future of the town milk industry. There is no pet confrontation that I feel compelled to get off my chest. Nor am I tempted to take up the lilt of the Monetary and Economic Council's very lucid report on what inflation is doing to the economy. On the contrary, I find it a welcome occasion to pay a well-deserved tribute to the industry you represent and to acknowledge what you are doing and the co-operation you are showing to the Board.

The treatment sector, as we call it, has become the important pivot of the town milk industry. It stands at the centre of



the flow-line from farm to consumer, taking guard over the hygienic quality of the milk as it processes and packages it for the market. It takes this role of guardianship seriously, and this is one of the reasons why you are here today. As science and technology continue to widen the extent of our knowledge of milk handling in all its aspects, the treatment stations are not slow in their response to the new techniques and methods which make use of this knowledge.

Few of us would ever claim that whatever part we play in the town milk supply system, it needs any special recognition beyond the knowledge of customer satisfaction. We do not invite it or expect it, notwithstanding the fact that it has some unique and unusual features.

## Daily Deadlines

I can find no example in any other industry marketing a highly perishable product which can even remotely match the co-ordinated performance of our own. By its nature, it is governed by the exacting requirements of demanding daily deadlines from which there is no exemption. Today—plus or minus—170,000 cows will be milked night and morning to provide the contracted volume of milk for the New Zealand market.

Today, 1,800,000 pints of milk will be pasteurised, tested for hygiene and quality and bottled for distribution. Ninety-eight percent of this milk will achieve finest grade. Today, 1,200 milk vendors will deliver the requirements of 700,000 households within the hours specified in their licences. Today, there will be 12 official complaints—one in nearly 60,000—and these complaints will relate mainly to late delivery or omitted delivery.

All this will take place today; it will take place tomorrow and for each of the remaining 365 days of the year, Saturdays and Sundays alike. Next year is a bonus year with 366 days, but it will be the same.

As I say, the treatment stations are the pivot of this highly organised, systematic and efficient service.

Let me go a little further with this tribute. Far-sighted Government policy created the auspices under which this performance has been achieved. The legislation which it enacted and the temporary finance which it provided at the outset made it possible to organise and develop. But it is the producers who as a group have now emerged as the significant influence in the industry. They are the men who bind themselves by contract to maintain the supply. They are the men who with their colleagues in the manufacturing dairy industry have not only provided more than 75 percent of the equity fund investment in the treatment stations, but also the skilled management abilities and experience found on the Boards of most of the treatment companies throughout the country.

It goes deeper than this. The value of the farming co-operative movement to the New Zealand economy cannot be assessed in its entirety, least of all by the huge sum of money that it has ploughed back into production and marketing of its products. It goes much further than this by creating a cohesiveness within farming groups and great resources of able leadership which are transmitted from one generation to another. It is a significant part of the economic strength of the country as a whole, and the consumer of milk also inherits these benefits.

## Distribution

At the distribution end of the line are the vendors, the essential link with the consumer. For the most part single operators, for the most part individualists, their record in what I have called the performance of the industry has been conspicuously good.

The town milk industry has always had its share of press and other publicity, and one of my tasks is to read the



newspaper accounts of what people are saying about it throughout the country. It is quite an enlightening experience.

Over the past couple of months, one of the topics which has engaged the interest of editorial and other commentators has been the future of the liquid milk supply, since a senior Government spokesman, expressing his own opinions, advocated the use of instant whole milk powder as a substitute for the present domestic supply. I thought that the press reactions were very sensible when they expressed the view that strong consumer resistance would be encountered if such a change were compelled.

However, of greater importance to those who have the public interest to consider would be the substantial drop in equivalent consumption of milk which on nutritional grounds alone would be a high price to pay for what may appear to be a less costly method of marketing.

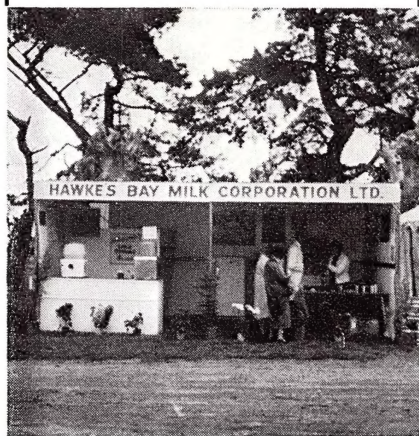
While we can continue to market town milk as efficiently and economically as

we do—and I am ignoring the effect of the Government subsidy which does little to vitiate this claim—I can see no sweeping changes of this kind taking place in the foreseeable future.

In fact, part of my tribute to you today is the belief that you share the same confidence in the future of the industry, and that while adapting to change and continuing to initiate improvements which are beneficial to the consumer market, you will maintain the high record of performance which now exists. This, in my view, is the essence of protecting that market.

My very best wishes to you for an enjoyable conference which is now open.

## Milk At The Show



Pictured above is the stall arranged by Hawkes Bay Milk Corporation Ltd. at the Hawkes Bay A. & P. Spring Show late last year, at which flavoured milk drinks and yoghurt samples were dispensed.

## COURSE FOR MILK TECHNICIANS

The Central Institute of Technology in Petone is conducting a course for milk technicians during the period 20th March to 5th May, 1972, along similar lines to those held in the past four years.

The course and tuition fee is \$11, payable at the time of enrolment, and milk stations proposing to send a member of their staff to the course are urged to make accommodation arrangements as far in advance as possible. Accommodation is difficult to obtain in the Hutt Valley area at short notice.

As in past years, the New Zealand Milk Board will meet half the cost of the Institute fees and also half the first-class return travel fares. In addition the board will pay \$40 towards the cost of accommodation.

The Board hopes that milk stations nominating members of their staff to attend the course will meet the remainder of the costs incurred, and so help ensure a good attendance at the course.



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IN MID-1970 the New Zealand Milk Board, after consulting the three major industry federations and a number of organisations associated with the industry, announced its decisions in principle for adoption of the metric system by the town milk industry. These decisions were given wide publicity and were communicated to the Metric Advisory Board. Since then the Milk Board has maintained liaison with the Metric Advisory Board and the industry federations while plans were completed to put the policy decisions into effect.

## THE CHANGE TO THE METRIC SYSTEM

### ADVICE TO TRADE

In December 1971 the Milk Board advised trade interests by circular of the arrangements for the start, to be made in mid-1972, of gradual adoption of the metric system. Some of the main points in that circular are reprinted here.

### TIMETABLE AND GOVERNMENT APPROVAL

Metric measure bottles have already been supplied to milk stations for trial use and the Federation of Milk Stations has submitted a timetable for the gradual change, commencing next year, to the new type bottles. In the light of this timetable the Milk Board has obtained Government approval to the consumer price arrangements that are to apply while both metric and imperial measure bottles of milk and cream are being marketed together.

### CHANGE TO BE PROGRESSIVE

The following are the main features of the changeover:—

- (a) The three new metric measure bottles, which will contain 5.6 per cent more milk or cream than the imperial measure bottles they are to replace, are as follows:

A **600 ml bottle** will replace the pint (568 ml) bottle and is expected to be known simply as a **BOTTLE**. It will have embossed on it the words "MILK STATION" and "600 ml".

A **300 ml bottle** will replace the  $\frac{1}{2}$  pint (284 ml) bottle and is expected to be known as a **HALF BOTTLE**, or simply as a **HALF**. It will have embossed on it the words "MILK STATION" and "300 ml".

A **150 ml bottle** will replace the  $\frac{1}{4}$  pint (142 ml) bottle and is expected to be known as a **QUARTER BOTTLE**, or simply as a **QUARTER**.

- (b) The N.Z. Glass Manufacturers Company, at its Auckland and Christchurch factories, will cease making imperial measure bottles in March or April 1972, and thereafter will manufacture only the new metric measure bottles, described above, that are to replace them. The glass company at Auckland has already obtained orders from North Island milk stations for their bottle requirements for the first six months of 1972. The Christchurch factory will shortly obtain orders from South Island stations for the same period. All orders will be supplied in the usual manner except that as from some time in May 1972 all bottles despatched to milk stations should be in the new metric sizes. When ordering, milk stations need specify only the quantity of bottles of each size required each month. There is no need to state whether imperial or

metric measure bottles are required as the time when the metric measure bottles are first supplied will be determined by the glass company. Stations should continue to order no more than normal requirements and, for reasons explained later, should not endeavour to overstock with imperial measure bottles before the metric measure ones become available.

- (c) On the above basis milk stations should start introducing the new metric measure bottles into circulation in June 1972 and from then on they will progressively replace imperial measure bottles as the latter become lost or broken and disappear from circulation. The Milk Board has agreed with the Federation of Milk Stations that a period of 20 months (5 percent per month) should be allowed in which total replacement is to be completed. At the end of this 20-month period, that is by 1st February, 1974, any remaining imperial measure bottles will be withdrawn from circulation and the industry will then be completely on metric measure bottles. This 20-month period may have to be adjusted in the light of actual experience but it will have to end on the same date for all milk stations throughout New Zealand.
- (d) Once the new metric measure bottles start going into circulation in June 1972 milk stations will fill both these and imperial measure bottles and supply them to vendors without differentiation. As time goes on the proportion of metric measure bottles received by vendors from milk stations will progressively increase.
- (e) During the 20-month changeover period all prices and margins from producer right through to consumer will remain in terms of cents per gallon and all milk and cream will continue to be bought

and sold by the gallon. For accounting purposes 600 ml, 300 ml and 150 ml bottles of milk and cream will be treated by milk stations and vendors as though they are pints, half-pints and quarter-pints respectively.

## CONSUMER PRICES DURING CHANGEOVER PERIOD

Government has approved that 600 ml and 300 ml bottles of milk and cream will be sold as, and at the same price as, pint (568 ml) and half-pint (284 ml) bottles of milk and cream while the two types of bottles are being marketed together. Similarly, 150 ml bottles of cream will be sold as, and at the same price as, quarter-pint (142 ml) bottles of cream during the same period.

## ADJUSTMENTS WITH TRADE

Milk stations will continue to purchase milk and cream by the gallon from producer associations during the changeover period but as they will be supplying to vendors some milk and cream in metric measure bottles and charging vendors as though the milk was in imperial measure bottles they will suffer a loss, to the extent of the extra milk and cream supplied, which the Milk Board will reimburse.

The effect on overall sales of changing to the slightly larger capacity metric measure bottles will depend on the reaction of individual consumers. Some consumers will, no doubt, buy 600 ml bottles of milk in future where previously they bought pint bottles of milk. This will result overall in an increased volume of sales. If, however, they tend to buy the same quantity of milk in future then fewer bottles will be needed to supply their needs. During the changeover period it may not be easy to detect what effect the metric measure bottles are having on the sales pattern because of the mixture of bottles in circulation. If fewer bottles are sold during the changeover period the result will be an apparent loss of sales and a reduction in margin revenue for treatment stations, vendors and cartage con-



tractors because all bottles will be accounted for as imperial measure ones.

To overcome these factors the New Zealand Milk Board will make appropriate financial adjustments with various sectors of the industry. The general nature of these adjustments has already been outlined to most trade interests. Those who have not seen the circular may obtain this information from the nearest district office of the Board. More specific information will be given in the near future.

### **POSITION WHEN CHANGEOVER COMPLETE**

At the end of the 20-month period when all remaining imperial measure bottles should have been withdrawn from circulation all prices and margins right through from producer to consumer will be fixed in metric terms, i.e., in cents per litre instead of in cents per gallon. Milk

stations will have to withdraw all imperial measure bottles in circulation by that time because, as prices will then be expressed in terms of either cents per litre or cents per 600 ml, 300 ml and 150 ml bottle of milk and cream they will, in fact, be overcharging if they supply milk in imperial measure bottles. There is no point in milk stations overstocking in the near future with imperial measure bottles before the metric measure bottles are manufactured because this will only increase any loss suffered by stations when imperial measure bottles remaining are withdrawn from circulation at the end of the changeover period. Ideally, bottles held by stations after receiving their order from the March or April 1972 production run by the glass company factories should be little more than sufficient to last until they receive their first supply of metric measure bottles from the May 1972 production run.

## **GRASS STAGGERS AND MAGNESIUM DEFICIENCY**

GRASS STAGGERS in dairy cows and run cows is associated with low magnesium levels in the blood (hypomagnesaemia).

This can be caused by insufficient feed, insufficient magnesium in the feed, or by the inability of the animal to utilise the magnesium in the feed, particularly if the animal is under stress or strain.

Animals may be affected by magnesium deficiency which is not severe enough to restrict plant growth. In pasture which is being restricted by a magnesium deficiency, clovers would contain about 0.15 percent to 0.12 percent magnesium and ryegrass between 0.13 percent and 0.1 percent, yet animal health could be affected when pasture contains 0.25 percent magnesium. While pasture restriction through a magnesium deficiency is rare and mainly occurs on pumice or sandy soil, it is not uncommon to have pasture with a 0.2 percent magnesium level.

A deficiency becomes even more serious to stock when feed is in short supply. It happens that magnesium levels vary throughout the season, and the lowest level found in pasture usually occurs in winter/early spring, the time when feed is often short.

Pasture type can also influence the amount of magnesium made available to stock. Ryegrass provides less than the equivalent weight of clover. Of the ryegrasses, Manawa H1 provides the most magnesium. The application of potash fertiliser can for a few weeks depress magnesium levels in herbage by up to 25 percent. Liming and nitrogen top-dressing can also influence the level.

Grass staggers is unlikely to strike cows that have sufficient feed from pasture containing more than 0.25 percent magnesium. Concentrations can be raised to 0.25 percent or higher by the application of magnesium fertilisers. Serpentine super (with 7 percent magnesium, of which 40 percent is water-soluble) is

usually the most economic form. It should also be used where potash is regularly applied.

However, serpentine super should not be looked upon as a cure for grass staggers. Continued applications will ensure you don't have very low magnesium levels. It will reduce the risk of grass staggers. So can increased feed supply

during times of shortage (particularly winter/early spring), as can the removal of any stress upon an individual animal. Improved pasture quality will help.

Where grass staggers exists, a magnesium supplement should be fed with concentrate feeds. Consult your veterinarian.

—From *Fertiliser News*, September 1971.

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## Computerised Milk Production Saves Costs And Increases Yields

FIVE THOUSAND cows from 55 British dairy herds have just completed their first year of computerised milk production using a new system devised by a Yorkshire, Northern England, company.

The company, leading manufacturers of animal feeding stuffs, spent two and a half years developing a programme which not only regulates and selects the type and quality of feeds, but which also provides a detailed summary showing milk yield and financial return each month plus an estimate of future milk production over the next four weeks and details of the cost of cake and home-grown feeds.

The system is said to eliminate the problems associated with under or over-feeding and as well as providing the farmer with a costing and management guide it also supplies him with reminders indicating which cows are due for calving, drying off, servicing, etc.

The farmer is given a costing and management guide for keeping in the farm office and the herdsman is given a feeding guide in a plastic envelope for use alongside the cows.

The information required by the computer takes some 20 minutes to compile each month, whereas to obtain the same data a trained mathematician would take over six hours, says the firm.

Part of the service includes the analysing of the farmer's own home-grown roughage by the company's laboratory so that the computer can automatically print out on the feed guide the right amount of feed cake required to balance the roughage for each cow.

Already several herds have given up all other milk recording, and farmers who have participated in the scheme so far are said to have welcomed the system as a means of making dramatic savings in cost, labour and improving milk productivity.

The British farmers are offered a three-month free trial or six months to customers. After that the cost is 3p per cow per month.

"The larger the herd, the more economic it becomes," said a spokesman for the company.

The 55 herds which have used the system for a year vary from 1,500-gallon averages and milking herds of 400 to the smallholder who wants his administrative burden lessened while knowing month by month not only what his profit is but also what his next month's profit will be.

The company is prepared to offer the programme to overseas customers or to come to licensing arrangements with those interested.

—*Farms News from Britain*.



### **Mr. R. (Dick) Roberts**

MR R. (Dick) ROBERTS, is general manager of Hutt Milk Corporation Limited.

Born in Wellington in 1918, he received his primary education at Hutt Central School. He attended Hutt Valley High School for his secondary education and was Head Prefect in his final year. On leaving school Mr Roberts studied accountancy and obtained his membership of the New Zealand Society of Accountants. He also obtained about this time his associateship with the Chartered Institute of Secretaries.

Mr Roberts then attended Victoria University and gained the degree of Bachelor of Commerce.

He saw four years' war service with the 2nd Division N.Z.E.F. in the Middle East, and upon his return to New Zealand spent five years on the staff of McCulloch, Butler & Spence, Public Accountants, in Wellington.

In 1952 he joined the then Hutt Valley Milk Treatment Corporation as its first full-time secretary. He was appointed to his present position in 1966.

Mr Roberts is a keen sportsman. He is a member of the Hutt District Cricket Club, which he joined in 1936, and still plays regularly in the fourth grade.

He has represented the Hutt Valley in senior grade cricket, and represented Wellington in the Brabin Shield inter-provincial tournaments in 1939/40. He also played senior hockey before the war. Nowadays he follows the fortunes of the Hutt Old Boys rugby team, during the winter.

Mr Roberts has wide interests in community work. He is currently a director of the Eastern Hutt Rotary Club, and is a member of the standing committee of the Wellington Diocese of the Anglican Church.



Married with two children, Mr Roberts lists as his hobby his half-acre garden at his home in Stokes Valley, which he says keeps him "fairly well occupied".

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Grass grub damage is more pronounced under low-fertility conditions, and continued topdressing is therefore advised on pastures where the pest is likely to occur, according to the Advisory Services Division of the Department of Agriculture.

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As a safeguard against brucellosis infection, people handling cows, particularly those which have recently calved, should take particular care with personal hygiene, according to the Animal Health Division of the Department of Agriculture. Hands should be washed thoroughly before eating, and minor abrasions and cuts should be protected with waterproof tape.

# MARKET MILK CONFERENCE AT MASSEY WAS WELL ATTENDED



THE MARKET MILK CONFERENCE held at Massey University, Palmerston North, on 16th and 17th November, was well attended by representatives of all sections of the town milk industry.

Although shortened to two days, the conference programme was varied and interesting and stimulated much discussion.

Dr A. Stewart, Vice Chancellor of Massey University, welcomed representatives to the conference. In his address, Dr Stewart outlined the development programme which was being pursued at the university and the large increase in student population and numbers of courses offered.

Mr L. V. Phillips, Chairman of the New Zealand Milk Board, officially opened the conference. (The full text of Mr Phillips' speech appears elsewhere in this issue.)

Proceedings were chaired by Mr J.

Henson, Reader in Dairy Technology at Massey University, who controlled proceedings and kept things running to schedule.

The following is a list of the papers presented and the speakers.

**Changeover to Metric System**—*A Symposium* chaired by D. J. Henderson, General Manager, N.Z. Milk Board.

**Weights and Measures Regulations**—R. G. Church, Chief Inspector of Weights and Measures, Department of Labour, Wellington.

**Glass Company's Involvement**—J. J. Swindells, Technical Development Executive for N.Z. Glass Manufacturers Co. Ltd., Auckland.



*Milk Station's View*—R. B. Whatley, General Manager, Waikato Milk Co. Ltd., Hamilton.

*Accounting Aspect*—R. F. Clarke, Chief Executive (Marketing), N.Z. Milk Board.

*Yoghurt and Cottage Cheese Competitions, Discussion on Entries*—D. R. MacLaine, Supervising Market Milk Instructor, Dairy Division, Department of Agriculture, Wellington.

*Reconstituted and Recombined Milk*—W. B. Sanderson, Head, Applied Research Section, Dairy Research Institute, Palmerston North.

*Some Recent Developments in Building and Their Relevance to the Dairy Industry*—L. J. Parkinson, Architect, Group Architects and Engineers, Palmerston North.

*Milk in Sachets, introduced by*—R. B. Whatley, General Manager, Waikato Milk Co. Ltd., Hamilton.

*Machine Design and Construction*—P. Woolnough, Engineering Division, U.E.B. Industries, Auckland.

*Film for the Sachets*—G. M. Tunnicliffe, Food Technologist, U.E.B. Industries Ltd., Auckland.

*Hygienic Aspects Relating to the Distribution and Sale of Milk*—J. O'Driscoll, Chief Inspector of Health, Department of Health, Wellington.

*The Role of Government in Industrial Relations*—F. D. R. Roe, Chief Inspector of Factories, Department of Labour, Wellington.

*Milk Grading Objectives*—N. E. Briggs, Director, Dairy Division, Department of Agriculture, Wellington.

*Short Training Courses for Dairy Operators*—J. D. Sargent, Education Officer, N.Z. Society of Dairy Science and Technology.

Discussion on general topics followed.

The judging of the entries submitted in the by-products competition was held on the afternoon of November 15, results and a report on which appear elsewhere in this issue.

After Mr MacLaine's discourse on the competition, and the presentation of

prizes by Mr L. G. Purser, N.Z. Department of Agriculture, and a member of the N.Z. Milk Board, delegates were invited to taste the entries in the competition. A selection of fermented milk drinks, made by Massey University staff were also made available for delegates to taste and comment upon. The discussion which followed doubtless proved informative to the delegates.

The New Zealand Milk Board was host at a social gathering held at the Student Centre on the Wednesday evening which was voted a success by all who attended.

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## **THE FRONTISPIECE**

### **Milk Stall Success**

MILK PROCESSING (P.N.) LTD., in conjunction with the Palmerston North Milk Vendors, arranged a display at last year's Palmerston North Royal Show, and dispensed flavoured milk, grapefruit juice and yoghurt.

"The whole idea of the stall," said Mr D. S. Harris, manager of Milk Processing (P.N.) Ltd., "was to acquaint the public with what their milk vendor has available, and to introduce them to our brand of yoghurt, our flavoured milk, chocolate and strawberry, and to provide free samples of all our products."

Some 2,000 free samples of flavoured milk and yoghurt were distributed. Four hundred cartons of yoghurt were sold, 60 gallons of grapefruit juice was sold as 8 oz. drinks, and 150 gallons of both chocolate and strawberry milk was sold as 8 oz. drinks.

Waikato Sheet Metal Ltd.'s "Bag in Box" dispenser was used, as well as two "acrocools" to dispense drinks.

The emphasis of the stall was placed on what was available daily from the vendor, and that milk was nature's finest food. The processing company and the vendors felt that the effort was well worth while.

# NEW PRESIDENT OF DOMINION FEDERATION OF MILK VENDORS

MR. DOUGLAS HODGES YOUNG, 48, of Invercargill, was recently elected president of the Dominion Federation of Milk Vendors Incorporated on the retirement of Mr F. E. Foster, of Upper Hutt.

Mr Young was educated at Invercargill North Primary School and Southland Technical College and entered the business of servicing weighing machines and scales as a scale mechanic, a trade in which he has continued to retain an interest.

He also saw service as sergeant with the 27th Battalion in Italy during World War II, and in his younger days was a keen cyclist.

Doug. has been a milk vendor for 12 years in the Invercargill-East Glengarry area. For eight years he has been the Southland Regional representative on the Executive Committee of the Dominion Federation of Milk Vendors. He was Vice President for three years during that period.



Mr Young is married with one married daughter.

Outside of milk vending, his major interest is gliding, a pursuit in which he has participated for the last six years. He is a past President of the Southland Gliding Club, and is currently a "B" category gliding instructor.

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## **Market Milk Cow Competition Prizewinners At Canterbury Show**

THE FOLLOWING are details of the first three placegetters in the Market Milk Cow Competition held at the 1971 Canterbury Show at Christchurch and sponsored by Canterbury Dairy Farmers Ltd.

The class attracted 13 entries of which the first six, all Friesian, qualified for prize money.

**First:** J. J. and J. A. Geddes' seven-year-old Friesian, Tahora T.B. Leyma. Production of milk was 25,059 lb., and butterfat 1,187 lb., with a test of 4.7 per-

cent. Type points awarded were 90, with total points of 190.

**Second:** E. L. Adam's six-year-old Friesian, Pitcairns T. Pearl. Production of milk was 16,106 lb., and butterfat 682 lb., with a test of 4.2 percent. Type points awarded were 92, with total points of 189.75.

**Third:** J. M. Hewson's three-year-old Friesian, Richlea Blitz P. Lisa. Production of milk was 14,311 lb., and butterfat 594 lb., with a test of 4.2 percent. Type points awarded were 85, with total points of 184.25.





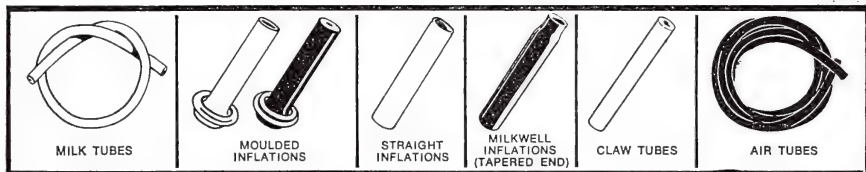
He's among the many thousands who choose Reidrubber inflations because he insists on the best quality for maximum milker performance – which means **peak production**. Reidrubber's flexibility and special rubber compounds ensure full milking pulsation without becoming sluggish. Choose Reidrubber inflations, it's a wise move.

# Reidrubber

## MILKER RUBBER

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2208



# Federation Of Milk Stations Meeting

THE Annual General Meeting of the N.Z. Federation of Milk Stations was held in Palmerston North on 15 November, 1971, prior to Market Milk Conference. The President, Mr. W. C. Morris, of Hamilton, in the course of his address covered a wide range of subjects dealing with the activities of the Federation.

Chief among these was the industrial situation which Mr. Morris said had continued to be of great concern during the year.

In his address the President spoke of the Federation's submissions to The Milk Prices Authority for an adjustment to margins based on a survey of the extent of increases in wages and other signifi-

cant costs provided by a number of Milk Stations. The Authority had promulgated this decision in May 1971 and the new rates, effective from 1 November, 1970, represented an overall increase of 0.35 cents per gallon.

Messrs. W. A. Blain, W. C. Morris and R. B. Whatley retired from the Executive Committee by rotation and being eligible were elected for a further term. Mr. Morris referred to the resignation of Mr. G. N. Hepburn from the Executive Committee and spoke of the valuable work Mr. Hepburn had done for the industry both at national and local level. He also suggested steps which may be taken to fill the vacancy on the Executive Committee.

## INCREASED PASTEURISATION, BOTTLING AND STORAGE ALLOWANCES ON TOWN MILK

THE MILK PRICES AUTHORITY has fixed, with effect from 1st September, 1971, increased pasteurisation, bottling and depot storage allowances in respect of town milk. There is no increase in homogenisation allowances.

### (a) Pasteurisation

(i) Where milk is stored at treatment station pending delivery:—

	Old Allowances c.p.g.	Increases c.p.g.	New Allowances c.p.g.
Under 1,000 gallons per day .....	3.99	.17	4.16
1,000 gallons and over but less than 2,500 gallons per day .....	3.59	.17	3.76
2,500 gallons and over but less than 10,000 gallons per day .....	3.39	.17	3.56
10,000 gallons or over per day .....	3.39	.17	3.56

(ii) Where milk is stored elsewhere than at treatment station pending delivery:—

Under 1,000 gallons per day .....	3.79	.16	3.95
1,000 gallons or over but less than 2,500 gallons per day .....	3.39	.16	3.55
2,500 gallons or over but less than 10,000 gallons per day .....	3.19	.16	3.35
10,000 gallons or over per day .....	3.19	.16	3.35

### (b) Bottling .....

### (c) Storing by Refrigeration:

(i) In a community depot .....	1.00	.20	1.20
(ii) In a vendor's depot .....	0.70	.05	0.75



## Sudden Death Of Mr. M. McFetridge



MR MARTIN McFETRIDGE, who was supervisor of farm dairy instruction in the Dairy Division, Department of Agriculture, until his retirement in late 1970, died suddenly at his Hamilton home on November 23, 1971. He was 67.

Mr McFetridge joined the Department in 1941 as a dairy instructor at Kohukohu, and from 1946 to 1955 he was a special instructor at Palmerston North.

He was well known for his close association with the conversion from can collection to tanker collection of milk from farms, and was also responsible for the setting up of a practical training programme for specialist dairy advisory officers.

Mr McFetridge was a recognised authority on farm dairies and will be remembered by many for his contributions to Market Milk Conferences.

He is survived by his widow and a son and daughter, to whom *Town Milk* extends its sympathy.

## The Cost of Milk Subsidy

THE COST of milk subsidy for the year ended 31st August, 1971, was \$22,181,346. The following summary gives an analysis of the costs in cents per gallon:—

	<i>Cents per gallon</i>
Payments to producers .....	30.608
Cost of handling surplus production .....	3.384
Cartage from farms .....	1.310
Processing and bottling .....	7.062
Distribution costs .....	14.831
Administration costs .....	—
(New Zealand Milk Board and Milk Producer Asso- ciations) .....	0.813
	<hr/> 58.008
Consumer prices and other realisations .....	31.183
	<hr/>
Subsidy .....	26.825

## Vendor Prosecutions

IN THE Magistrate's Court at Auckland, a vendor prosecuted by the Board in October 1971 for making incorrect sales declarations and also for overcharging customers was convicted and fined \$830, including Court costs and solicitor fees.

In the Magistrate's Court at Napier two vendors prosecuted by the Labour Department in December 1971 for employing boys under 16 years of age for milk delivery before 6 a.m. were each convicted and fined \$30, including Court costs and solicitor fees.

In the Magistrate's Court at Ashburton a vendor prosecuted by the Board in October 1971 for delivering milk from an uncovered vehicle was convicted and fined \$25, including Court costs and solicitor fees.

# MILK INDUSTRY STATISTICS

## SALES OF TOWN MILK, SWEET CREAM AND PER CAPITA CONSUMPTION OF MILK AND CREAM

For the year ended 31st August 1971, sales of town milk were 82,687,833 gallons, an increase of 3.00 percent over sales for the previous year.

Figures for the last seven years are as follows:—

Milk Year	Town Sales gallons	Increase over previous year %
1964-65	70,471,635	3.15
1965-66	72,481,552	2.85
1966-67	74,403,019	2.65
1967-68	75,918,573	2.04
1968-69	77,585,997	2.20
1969-70	80,277,797	3.47
1970-71	82,687,833	3.00

## TOWN SALES BY MONTHS

Total New Zealand town sales by individual months for 1967-68, 1968-69, 1969-70 and 1970-71 are compared in the following table with percentage increases.

Month	1967-68 gallons	Increase %	1968-69 gallons	Increase %	1969-70 gallons	Increase %	1970-71 gallons	Increase %
September	6,252,361	2.04	6,338,104	1.25	6,529,482	3.02	6,726,749	3.02
October	6,401,055	2.05	6,574,076	2.63	6,738,640	2.50	6,950,263	3.14
November	6,236,943	2.32	6,371,121	2.12	6,499,164	2.01	6,726,904	3.50
December	6,066,374	.85	6,212,613	.73	6,462,351	4.02	6,714,870	3.91
January	6,137,089	2.26	6,315,166	2.83	6,549,337	3.71	6,741,232	2.93
February*	6,035,618	5.74	5,949,880	-1.74	6,182,040	3.90	6,400,711	3.54
March	6,506,861	3.15	6,612,979	1.55	6,825,479	3.21	7,149,434	4.75
April	6,230,670	1.19	6,364,570	2.07	6,812,963	7.05	6,852,780	.58
May	6,572,981	1.78	6,738,068	2.44	6,966,562	3.39	7,127,788	2.31
June	6,340,428	.12	6,591,607	3.83	6,823,508	3.52	6,988,033	2.41
July†	6,611,746	1.93	6,818,076	2.98	6,996,731	2.62	7,199,584	2.90
August	6,526,447	1.34	6,699,737	2.66	6,891,540	2.86	7,109,485	3.16
	75,918,573	2.04	77,585,997	2.20	80,277,797	3.47	82,687,833	3.00

\* Lowest sales recorded this month.

† Highest sales recorded this month.

## CREAM SALES

For the year ended 31st August 1971, sales of sweet cream were 1,697,009 gallons, an increase of 1.69 percent over sales for the previous year. Figures for the last five years are as follows:—

Year	Gallons	% Increase
1966-67	1,557,524	1.68
1967-68	1,560,346	0.18
1968-69	1,626,454	4.24
1969-70	1,668,749	2.60
1970-71	1,697,009	1.69



## PER CAPITA CONSUMPTION OF MILK AND CREAM

Milk consumption per head of population in the 18 urban areas in New Zealand which had revealed a slight downward trend from 1964 to 1967, has recorded increases in each of the last four years. Due to changes made by the Department of Statistics in boundaries of urban areas, the 1971 statistics can at this stage be regarded as indicative only.

	MILK						Gallons per head per year
1964-65	.....	.....	.....	.....	.....	.....	31.07
1965-66	.....	.....	.....	.....	.....	.....	30.89
1966-67	.....	.....	.....	.....	.....	.....	30.72
1967-68	.....	.....	.....	.....	.....	.....	30.76
1968-69	.....	.....	.....	.....	.....	.....	30.97
1969-70	.....	.....	.....	.....	.....	.....	31.22
1970-71	.....	.....	.....	.....	.....	.....	31.56

The cream consumption figures overall show a static consumption per head. However, the monthly figures showed a reduction in consumption during the months of July and August 1971, when the increased price of 4 cents per half pint applied.

	CREAM						Pints per head per year
1964-65	.....	.....	.....	.....	.....	.....	5.24
1965-66	.....	.....	.....	.....	.....	.....	5.31
1966-67	.....	.....	.....	.....	.....	.....	5.30
1967-68	.....	.....	.....	.....	.....	.....	5.12
1968-69	.....	.....	.....	.....	.....	.....	5.24
1969-70	.....	.....	.....	.....	.....	.....	5.24
1970-71	.....	.....	.....	.....	.....	.....	5.24

## SALES OF TOWN MILK BY SALES OUTLET

The following figures provide a breakdown of sales of town milk by sales outlet. There has been a percentage increase in shop dairy trade, and a decrease in retail sales.

TOWN SALES				% of	
Milk		Total Sales	Retail Sales	Total Sales	
1963-64	.....	68,321,294	52,614,973	77.02	
1964-65	.....	70,471,635	53,836,802	76.39	
1965-66	.....	72,481,552	54,952,803	75.86	
1966-67	.....	74,403,019	55,953,697	75.20	
1967-68	.....	75,918,573	56,801,468	74.82	
1968-69	.....	77,585,997	57,547,616	74.17	
1969-70	.....	80,277,797	58,616,029	73.02	
1970-71	.....	82,687,833	59,915,221	72.46	
Wholesale Sales	% of Total	Shop Dairy Sales		% of Total	
6,093,691	8.92	9,604,842		14.06	
6,127,677	8.70	10,507,156		14.91	
6,405,640	8.79	11,123,109		15.35	
6,705,605	9.01	11,743,717		15.75	
6,771,923	8.92	12,345,182		16.87	
6,953,811	8.96	13,084,570		16.87	
7,308,864	9.10	14,353,404		17.88	
7,478,531	9.04	15,294,081		18.50	

# Explanations Of Amendments To Milk And Stamp And Cheque Duties Act

The Milk Amendment Act 1971, dated 3rd December 1971, amended various provisions of the Milk Act 1967. The Stamp and Cheque Duties Act 1971 also amended some provisions of the Milk Act.

## MILK AMENDMENT ACT 1971

Some of the changes are purely machinery or administrative, and an indication is given below of only those changes which are of particular interest to the various sections of the industry.

### Section 3:

Whereas previously it was a condition of any vendor's approval that the holder of the approval should be responsible for the proper conduct of the round and that no lease, contract or other arrangement was entered into whereby he was absolved from that responsibility, under the new Act it is a condition that the holder of the approval shall personally supervise and be responsible for the proper conduct of the round. Furthermore he shall not, without the prior written consent of the Board, enter into or, after 1st September 1972, remain a party to any arrangement whatsoever whereby that supervision or responsibility is in any way diminished.

The effect of this is to make it clear that any arrangement, whether a contract, or any other type of agreement, which purports to take away or limit the personal supervision or the responsibility, cannot be entered into without the prior consent of the Board.

Milk vendors in particular should therefore note that no arrangement, other than employment of labour, where personal supervision or responsibility is in any way diminished should be entered into without reference to the appropriate District Office of the Board first of all.

### Section 4:

At present a temporary approval may be granted to a milk vendor for an area within a zoning system only if for the time being no milk vendor is approved

by the Board for that area. The amendment enables a temporary approval to be granted whether or not another approval subsists for the same area.

### Section 5:

This makes it clear that the Board may grant any consent to establish or operate a milk treatment station subject to such conditions it thinks fit, or may add or vary any conditions to a consent granted or deemed to have been granted, or revoke that consent.

### Section 6:

This extends rights of appeal as a consequence of the extended powers given to the Board under Sections 4 and 5 above.

### Section 11:

This replaces Section 54 of the Milk Act 1967 regarding the bringing of milk into a milk district. It sets out what milk may be brought into or sold in a milk district where there is a supply association or an approved association of milk producers.

### Section 12:

This extends the provisions of Section 69 (1) of the Milk Act 1967 regarding the making of regulations concerning the issue, sale, use and redemption of tokens.

## STAMP AND CHEQUE DUTIES ACT 1971

Section 13 (1) (e) and (f) of the Stamp and Cheque Duties Act 1971 repeals subsection (11) of Section 21 of the Milk Act 1967 and makes new provisions concerning the payment of stamp duty on the goodwill of milk rounds bought and sold by the Board.



The effect of the new provisions is that as from 1st January 1972—

- (a) No stamp duty is payable on the sale of all or any part of the goodwill of a milk round to the Board.
- (b) When, in a rezoning, a vendor loses permanent approval trade in one area and gains permanent approval trade in another area, stamp duty on the instrument is payable only on any net balance of goodwill due by the vendor.

Thus if a vendor loses 30 gallons of retail trade in one area and acquires 34 gallons of retail trade in another, stamp duty would be payable only on the extra four gallons of retail trade acquired.

- (c) Where no such exchange of trade is involved the normal *ad valorem* conveyance duty at \$1 per \$100 or part thereof still applies to all sales of goodwill by the Board to vendors.

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## Mr. Buster Foster Retires

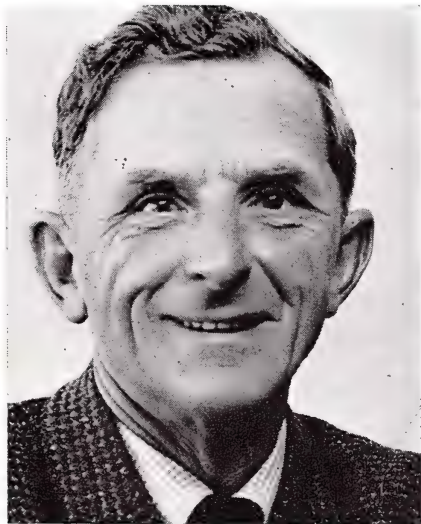
MR F. E. (Buster) FOSTER recently retired as President of the Dominion Federation of Milk Vendors Incorporated having held this office since 1966.

He is succeeded by Mr D. H. Young, of Invercargill.

Mr Foster's interest in the industry began about 14 years ago when he took over a round in Upper Hutt, where he has resided for nearly 54 years.

Buster takes a keen interest in milk vending affairs and has served on the Hutt Valley and Bays Milk Vendors' Association executive for some years. He has also held the office of President for several terms.

Mr Foster's term of office as Dominion President has reflected his vigour and enthusiasm which he has displayed in his efforts on behalf of his fellow vendors. He has now contracted his milk round, and has thus severed his direct connection with the vending sector of the industry.



Buster has taken an active interest in a wide range of affairs in the area, embracing local body and political affairs, the A. and P. Association, Rotary and the Dramatic Society. His sporting interests have covered hockey, rugby, shooting and fishing.

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## American Visitors

MR AND MRS P. E. JOHNSON, of the United States of America, called at the Auckland office of the New Zealand Milk Board on November 8, 1971, during a short visit to this country after having served a term in India assisting

in the erection of a new milk processing plant there.

They also visited the Auckland Milk Corporation Ltd., in Rockfield Road, Penrose.

Mr Johnson is a Professor in Dairy Machinery at the Oklahoma State University.

THIS is the text of an address presented to the Market Milk Conference 1971 by Mr. D. R. MacLaine, of the Dairy Division, Department of Agriculture, one of the judges of the By-Products Competition held in conjunction with the Conference. The other judges were Miss Mary Humphries, Dairy Research Institute, and Mr. Jim Henson, Massey University.

## **Judge's Comments On Requirements Of By-Products Contest**

### **YOGHURT**

I would like to commence this discussion with a general outline of what the judges were looking for.

I shall deal separately with yoghurt and cottage cheese and shall commence with yoghurt.

We considered that flavour was the most important characteristic. As with any food, it must have an acceptable smell and taste. In fact, it must be appealing, otherwise no one wants to eat it.

We were looking for a yoghurt free from all flavour defects. The importance placed on the defect was decided by just how objectionable it was and also whether it was the type of flavour which would become more unacceptable as the product aged.

We had to bear in mind and make due allowances for individual preferences, and try to overcome our personal fads. This is something which has to be watched closely when it comes to deciding, for instance, what is the most desirable degree of acidity in plain yoghurt. It can be even more complex when judging flavoured yoghurt. This point is demonstrated by individual preferences for different flavours and the intensity of flavours that we prefer. Many people add sugar to tea, coffee or desserts, while others would find this distasteful.

A lot of tolerance is called for in judging flavour characteristics, particularly when judging the most desirable degree of sweetness.

Generally, we adopted the attitude that points would not be deducted for

flavours which were considered slightly too sweet or slightly too acid.

With regard to artificial flavours, unless they were so obviously out of line to be unacceptable, they were not unduly penalised.

We were very critical, however, of foreign flavours which could have been inherent in the milk or other ingredients, or had been absorbed by the product during or after manufacture; also any "off" flavours caused by the wrong type of micro-organisms having developed which in turn may have been caused by inadequate pasteurisation, post-pasteurisation contamination, or the use of a weak or contaminated starter.

We expected a trueness of flavour in the fruit and artificial flavoured yoghurts.

The next characteristic we looked for was under the general heading of body and texture. In both the set type and slurry type yoghurts we were wanting a smooth, even texture, neither too sticky nor too slimy. Lumps, whether large or small, were not wanted.

The body we wanted is difficult to describe, but two years ago I described it as being sufficiently firm so that when a spoon is filled over-generously, set yoghurt tends to settle down into the spoon but still retains its general shape. Slurry types are expected to slump slightly with some of the excess yoghurt dripping reluctantly from the bottom of the spoon, while the upper surface is expected to retain a slightly heaped-up appearance in the middle of the spoon. When gently shaken, the yoghurt should not have gelatinous characteristics and should retain its shape fairly well.

While wheying off of set yoghurt is



considered natural, this should not be excessive. Oily characteristics were considered undesirable if pronounced.

The appearance and colour are also very important, because yoghurt must look attractive if people are to buy it.

Flakes of fat or curd, uneven or spotted colour caused by inadequately dispersed powder or extraneous matter were what we were looking for and hoping not to find.

### COTTAGE CHEESE

In broad terms, we were looking at flavour, granule size, body and texture and finally appearance and colour.

Flavour must always come first in a food product and I don't think the importance of flavour can be stressed too strongly.

The type of flavour we wanted to find was expected to be clean and free from "off" flavours. These may include such flavours as those described as "buggy", "metallic", "oxidised", "fruity", "unclean", or "feedy" and the term "off flavour" is often used to describe a flavour of uncertain origin.

We hoped to find a decided diacetyl flavour apparent both to smell and taste.

We did not want a flat, uninteresting flavour, nor did we want a flavour harsh with salt, but rather something in between.

The granule size is a very important feature of cottage cheese. We wanted a fairly even granule size somewhere between the size of a garden pea and a grain of wheat.

We wanted a cheese with a tender body without it being slushy.



MR. R. G. JARVIS, Manager, Dunedin Co-op. Milk Station Ltd., is presented with a trophy for his company's first placing in the competition for plain yoghurt. Mr. L. G. Purser presented this and the other class trophies. Mr. D. R. MacLaine is in the background (partially obscured).

A tough, rubbery curd similar to well cooked and washed lactic casein is quite undesirable. This is the type of curd that actually squeaks when you chew it and we have seen too much of this curd in the past.

The whole mass of curd should not run freely as do peas, but should cling together nicely for convenient serving.

It should be moist, but moisture should be held by the curd and not exuded from it to excess.

We expected the appearance to be attractive and a well-made cheese will in fact have a dull lustre about it which adds to its eye appeal.

We also expected the colour to be consistent.

The judges' placings and comments are as follows:—

**Class 1—Plain Yoghurt** (11 entries):

- 1st—Dunedin Co-op. Milk Station Ltd.
- 2nd—Waikato Milk Co. Ltd.
- 3rd—Milk Processing (P.N.) Ltd.

A good class—much better than we have seen in previous years.

All entries were reasonably acceptable and flavours for the most part were much cleaner than we have seen before.

Small white lumps were visible in two entries only.

One entry was very sweet and we were sure that it contained added sweetening and was not what we wanted in a natural yoghurt.

**Class 2—Flavoured yoghurt containing natural fruit** (11 entries):

- 1st—Hawke's Bay Milk Corp. Ltd.: Apricot.
- 2nd—Auckland Milk Corp. Ltd.: Blackcurrant.
- 3rd—Waikato Milk Co. Ltd.: Passion-fruit.
- H.C.—Wellington City Council Milk Department: Tamarillo.
- H.C.—Hutt Milk Corp. Ltd.: Spiced apple.

Judges considered that makers should aim to have the natural fruit flavours predominate the artificial flavours, rather than the other way round as in some entries.

Altogether a good class. The most

common defects were—white spots. Some were too thin, but most entries were of a pleasing body and texture. Most flavours were attractive.

**Class 3—Artificially flavoured Yoghurt** (5 entries):

- 1st—Hawke's Bay Milk Corp. Ltd.: Lime.
- 2nd—Metro Milk Treatment Ltd., Christchurch.

The first prize winning entry was of a high standard, having a nice firm body, even texture and a most pleasing blend of acid, flavouring and sweetening.

The entry placed second was too thin and runny and flavours were not sufficiently distinctive.

The other three entries were disappointing.

**Cottage Cheese** (7 entries):

- 1st—Auckland Milk Corp. Ltd.
- 2nd—Milk Processing (P.N.) Ltd.
- 3rd—H. N. Svendsen & Sons Ltd., Pukekohe.

Quite a fair class—much improved from previous years.

Curd structure in all entries but one (the one placed third) left something to be desired.

It was considered that more concentration on this feature would cause other features to fall into place.

## **Happiness Is Chewing**

A CHEWING COW is a happy cow, apparently. And at milking time it shows its happiness in a tangible, and profitable, way.

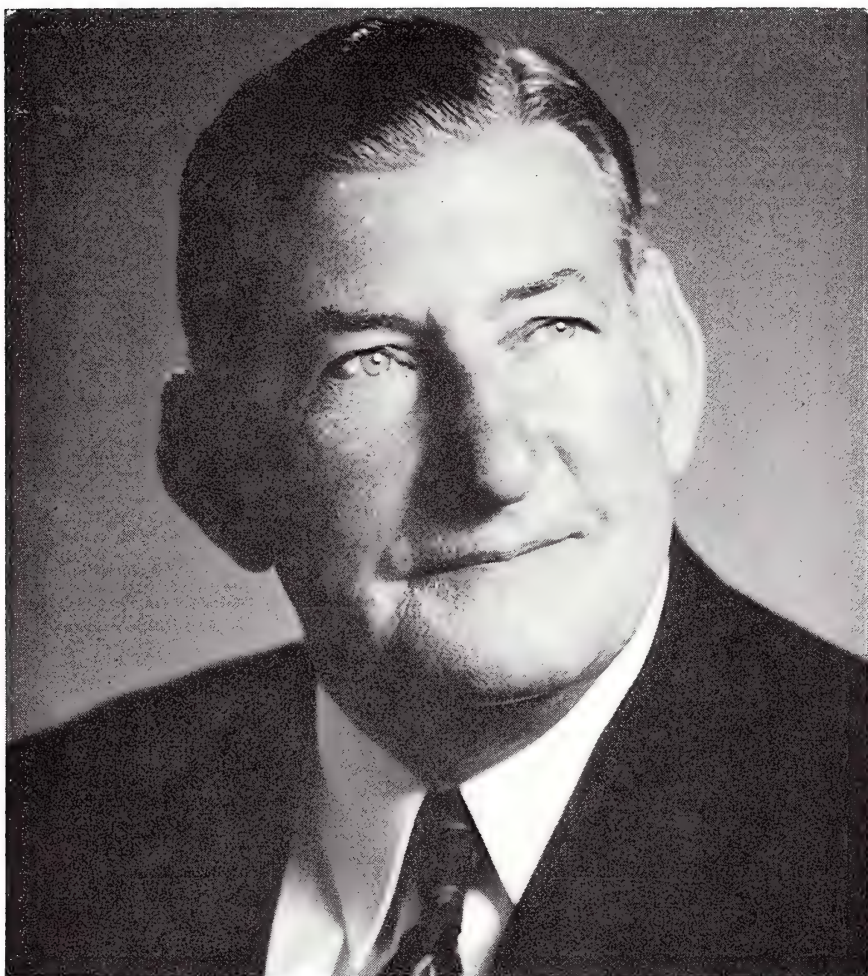
Dr D. G. Edgar, director of the Ruakura Animal Research Centre, told the Herd Improvement Council recently that there seemed to be some evidence that feeding small amounts of concentrate to cows at milking time was beneficial. While insufficient to affect them nutritionally, it did produce contentment that encouraged the let-down of milk.

RESULTS OF MILK STATION COST SURVEY — 1970 ANNUAL ACCOUNTS  
MILK STATIONS CLASSIFIED BY SIZE OF THROUGHPUT

Number of Milk Stations in Survey		Under 1,000 gals. per day	1,000 gals. but under 2,500	2,500 gals. but under 4,000	4,000 gals. but under 5,500	5,500 gals. but under 10,000	10,000 gals. and over	Total
EXPENSES		8 cents per gallon	16 cents per gallon	8 cents per gallon	3 cents per gallon	4 cents per gallon	7 cents per gallon	46 cents per gallon
Wage Costs	.....	3.697	2.680	2.445	2.356	2.659	2.563	2.592
Power Costs	.....	1.054	.732	.540	.585	.562	.487	.554
Direct Materials	.....	.744	.798	.803	.721	.919	.882	.853
Factory Expenses	.....	.922	.650	.638	.632	.700	.951	.822
Imputed and Overhead Costs	.....	1.501	1.343	1.389	1.407	.819	1.566	1.406
Management and Office Expenses	.....	.740	.645	.657	.505	.674	.627	.635
Transport to Vendors	.....	.245	.651	.054	.135	.620	.512	.456
Other Expenses, including Wastage	.....	.053	.017	.086	.082	.012	.031	.025
Total Expenses	.....	8.956	7.516	6.612	6.423	6.965	7.619	7.343
Total Revenue	.....	9.456	8.506	7.174	7.438	8.014	8.210	8.063
Total Profit	.....	.500	.990	.562	1.015	1.049	.591	.720



## MR. LYNSKEY TO RETIRE IN MARCH



MR V. S. LYNSKEY, Secretary of the Town Milk Producers Federation of N.Z. (Inc.) will retire from that position on 31st March.

Mr Lynskey was born in Kaiapoi, North Canterbury, and on leaving school joined the Public Service. After service in a number of Departments he was appointed Accountant to the Milk Marketing Division of the Marketing Department in 1945. At that time the Division

was engaged on work in connection with the implementation of the national milk scheme in accordance with the provisions of the Milk Act 1944 and involving the establishment of co-operative milk marketing organisations, etc.

In pursuance of the then Government policy, milk stations throughout the country were being acquired by the State from private interests and operated by the Government preparatory to being re-

equipped and, in many cases, rebuilt for ultimate return to non-Government control. Mr. Lynskey was associated with work in connection with many of these transactions.

In 1949, when the Town Milk Producers Federation decided to establish its own national organisation with a secretariat in Wellington, Mr Lynskey was appointed to the post of Secretary, a position he has held ever since.

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## Metriation Timetable For Road Transport

WITH THE Government target set for substantial conversion to metriation in New Zealand by the end of 1976, the involvement of the road carrying industry becomes more clearly defined.

The main metric units which will be used in road transport are:—

Length: Kilometres, metres, millimetres.

Weight: Kilograms.

Speed: Kilometres per hour.

Capacity: Litres (for petrol).

The timetabling of the draft programme is:—

**Traffic signs:** New signs showing distances in kilometres will begin to appear in 1972. Existing distance signs will be converted to kilometres in 1973, 1974 and 1975.

Supplementary advisory speed signs in "Km/h" will be erected above "m.p.h." signs in 1973 and 1974, and "m.p.h." signs will begin to disappear from early in 1975.

Adhesive "Km/h" speed limit signs will be placed over "m.p.h." signs in the first half of 1975, with important signs being changed in the first week of the operation.

**Maps:** Work has begun on the preparation of maps showing distances in kilometres and these will be available from the beginning of 1974 onwards.

**Vehicle equipment:** Conversion charts from miles to kilometres will be available from the middle of 1972.

New vehicles going on the road after the end of 1972 will have metric distance

Upon the establishment of a national organisation of milk stations in 1953, Mr Lynskey was appointed to the position of Secretary of the New Zealand Federation of Milk Stations (Inc.) and will continue to act in that capacity.

Mr. G. D. Hall, at present accountant to the Federation, has been appointed to succeed Mr. Lynskey as from 1st April, 1972.

and speedometers with removable "m.p.h." marking.

Speedometers must show metric speed limit markings when they are examined for their first warrant of fitness in 1975.

**Traffic Regulations and Vehicle Construction Regulations:** New metric regulations are expected to be passed in the second half of 1973 and will come into effect early in 1975.

**Heavy vehicle weight limits and taxation:** Metric weight and taxation regulations are expected to be passed in 1974 and will come into effect from April 1, 1975. The timetable provides for discussion and preparation of these regulations through 1972 and 1973.—*Transport News of New Zealand.*

## NEW PRODUCTS

THE Victorian Milk Board launched two new products in August last year. The new products are known as "Two-Ten" and "Toppit".

"Two-Ten" is a combination of fresh whole milk and non-fat milk powder, the compositional standard being 2 percent butterfat and 10 percent non-fat solids. It is a low fat protein added milk, designed to complement, but not compete with, traditional milk.

"Two-Ten" is being sold initially in quart cartons at 23 cents a carton.

"Toppit" is a light cream product and is to be used as a topping for cereals, fruits, puddings, etc., and can also be used for coffee. Its compositional standard is 12 percent butterfat and 10 percent S.N.F. This product is marketed in half-pint cartons at 10c a carton.





**UDC**

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# PRODUCTION TOPICS

## S.N.F. PERCENTAGES IN MILK

### INTRODUCTION

FIFTEEN years ago few New Zealand town milk producers had heard of solids-not-fat because farmers were not penalised for dropping below 8.50 percent—the critical level. Consequently there was little interest in the topic. On the other hand, research workers around the world had clarified the factors which could lower S.N.F. It was well known that Friesians had a lower S.N.F. than Jerseys and that a low level of feeding knocks the S.N.F. percentage. Old cows were known to have a lower S.N.F. than the young replacements entering the herd, with a higher mastitis incidence in older cows being a complicating factor here. Moreover, the S.N.F. percentage of a cow's milk falls to its lowest ebb some four to six weeks after calving, rising again towards the end of lactation.

In the early days of the town milk industry in New Zealand, producers had a high percentage of Jerseys in their herds and they milked late-spring-calving cows through the winter to maintain their quotas. Consequently there was no S.N.F. problem. Then producers found that the most efficient way to produce milk was to switch to the heavy milking Friesian which has very little freeboard for S.N.F. percentage. Farmers met their winter quotas by bringing in freshly calved cows. Combined with the effects of low quality winter feed, it was therefore not surprising that some herds dropped to an 8.30 percent S.N.F. level.

However, when penalties were introduced in 1966, producers demanded local research on the S.N.F. problem. The New Zealand Milk Board, working in conjunction with Lincoln College, carried out a Christchurch survey to see if it was possible to identify factors which were associated with herds having a low S.N.F. Surveys are not a very sensitive way of identifying the factors causing S.N.F. problems because it is technically

By J. M. Duncraft, A. T. G. McArthur,  
and M. G. Hollard.

difficult to unravel and measure the separate effects of each factor from a survey. For sensitive and reliable results, experiments are far ahead of surveys, but of course a survey is a much cheaper way of studying the problem.

Nevertheless, the Christchurch survey showed up the two important factors in the S.N.F. problem—breed and feed. It showed that the percentage of Friesian blood in the herd and the winter system of feeding the herd were the key factors in determining the S.N.F. percentage during the winter.

This article sets out the details of the survey design and the statistical analysis of the results. Those less interested in these details may like to skip to the final section which discusses our findings.

### SURVEY DESIGN

In the winter of 1968 there were 79 herds in the Christchurch area which were herd testing each month with the South Island Herd Improvement Association and individual cow testing for S.N.F. under the auspices of the local milk companies. Random methods were used to select 46 of these farms for the S.N.F. survey. The months of interest to us were June, July and August, because these months had been consistently the lowest for S.N.F. over several years. The average S.N.F. percentage for the farm over these three winter months was the factor we wanted to explain. For all 46 herds, this averaged 8.44 percent with a standard deviation of  $\pm 0.14$  percent\*. The possible explanatory factors measured for each herd were as follows:

\* Footnote: The plus or minus figure is the standard deviation which measures degree of variation between the farms.

### Butterfat Test

The average composite test from the company for each farm over the June-August period was used as the average butterfat test. This averaged 4.03 percent  $\pm 0.17$  percent.

### Soil Heaviness Index

The soils on each farm were classified into sandy, light, medium and heavy, and the effective acreage of each soil type recorded. A pointing system was used, 1.0 for sandy, 2.0 for light, 3.0 for medium and 4.0 for heavy soils. Each farm scored points between 1.0 and 4.0. This figure increased with increasing soil heaviness. The average was  $3.42 \pm 0.46$ .

### Wintering System Index

An index system was used to distinguish between methods on farms. Those that "paddock wintered" were pointed 0.0, those with some form of feeding platform or racks gained 0.5, and farms with a complete feeding sys-

tem, either a feeding shed or loafing barn, were pointed 1.0. The average was  $0.55 \pm 0.43$ .

### Breed Composition Index

Monthly testing sheets for the survey period gave the broad breed classification. This data was discussed with the farmer where necessary for further details, making it possible to estimate the percentage of Friesian blood in the milking herd during June, July and August. This averaged 92.91 percent  $\pm 11.01$  percent.

### AGE

The average age of the milking cows was 5.46 years, with little variation between herds. The standard deviation of age was 0.55 years.

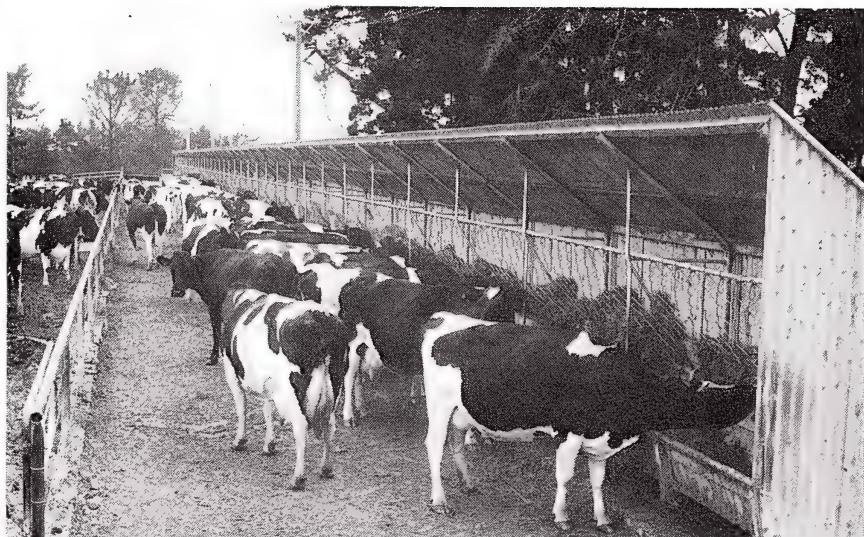
### Stage of Lactation Index

The percentage of cows calving from January through to April was used as an index of stage of lactation. This is the percentage of cows in mid lactation. This index averaged 43.44 percent  $\pm 11.49$  percent.



By increasing the amount of Jersey blood in the herd the S.N.F. test can be improved. To do so, however, would probably cause farm income to be reduced.





A simple and efficient wintering system prevents supplementary feed wastage and reduces pasture damage.

### Mastitis Index

The number of teats infected with clinical mastitis during the three months was expressed as a percentage of the total number of teats. This index averaged  $1.54 \text{ percent} \pm 1.34 \text{ percent}$ .

### Daily Winter Milk Production

This was the average daily milk supplied to the treatment station divided by the average number of cows in milk over the period. This averaged 3.04 gallons  $\pm 0.57$  gallons.

### Total Digestible Organic Matter per Cow

A systematic procedure was used to estimate both grazing and supplementary feed D.O.M.\* The feed supply included two earlier months (April and May) covering five months in all. The supply was expressed as tons of D.O.M. per milking cow and averaged 2.40 tons  $\pm 0.51$  tons.

## RESULTS

An initial statistical analysis extracted measures of association between causative factors and S.N.F. percentage. These

measures are called correlation coefficients. The correlation coefficient measures the broad degree of association between any two factors. Coefficients run from minus one indicating a perfect negative relationship, through zero indicating no association, to plus one indicating a perfect positive relationship. A positive association means that when one factor is "up" the other factor tends to be "up" too. For a negative relationship the reverse holds.

Table 1 shows the correlation coefficients between the causative factors just described and the S.N.F. index.

**Table 1: Correlation Coefficients of Causative Factors with the S.N.F. percentage**

Factor	Correlation
Butterfat Test	0.47
Soil Heaviness Index	0.02
Wintering System Index	0.39
Breed Composition Index	-0.31
Age	-0.18
Stage of Lactation Index	-0.26
Mastitis Index	-0.27
Daily Winter Milk Production	0.27
Total D.O.M. per Cow	0.15

\* Footnote: This is a measure of the energy-yielding quality of the feed.





The provision of large quantities of energy-rich feed is essential for high S.N.F. levels.

The broad associations as indicated by the correlation coefficients are in the expected directions. Friesian blood, old cows, mid-lactating cows and mastitis appear to be associated with low S.N.F. (note the negative signs). Soil heaviness is unrelated, while total D.O.M. supply and wintering appear to be positively related to S.N.F. percentage. Of all the factors examined the butterfat test had the strongest association with S.N.F. percentage—this close relationship has been well documented elsewhere.

A stepwise multiple regression computer program was then used to isolate factors related to S.N.F. for which the association was unlikely to be fortuitous. The three so-called significant factors isolated were:

Breed Composition .....	.....	(B)
Wintering System .....	.....	(S)
Total D.O.M. per Cow .....	.....	(D)

A formula for predicting S.N.F. percentage was constructed which results in the minimum error of "actual" versus "predicted" S.N.F. percentage for the 46 farms in the survey.

The formula is:

$$\text{S.N.F. \%} = 8.63 + 0.14S + 0.10D - 0.0053B.$$

Thus a farm with a loafing barn ( $S = 1.0$ ) and feeding 2.75 tons of D.O.M. per cow over the five months period ( $D = 2.75$ ), but running a 95 percent Friesian herd ( $B = 95.00$ ), can be expected to have an S.N.F. percentage of:

$$8.63 + 0.14 (1.0) + 0.10 (2.75) - 0.0053 (95.0) = 8.44$$

which is just below the critical level of 8.50 percent. This prediction is subject to an estimating error of  $\pm 0.11$ .

Like all predictions, this equation is not perfect in determining S.N.F. percentage from breed composition, wintering system and total D.O.M. per cow.

## DISCUSSION AND CONCLUSIONS

The predicting formula can be used to compare alternative ways of dealing with a low wintering S.N.F. percentage.

Building a wintering system in the Christchurch area appears to raise winter S.N.F. percentage by 0.14 percentage units. If S.N.F. averaged 8.40 percent, to start with, this in itself would bring the average S.N.F. above the critical level of 8.50 percent.

Improving the quantity of feed will also help. For instance, increasing D.O.M. by half a ton per cow over the

April to August period would increase S.N.F. percentage by  $0.1 \times 0.5$  or 0.05 percent. While this is not a great increase in S.N.F. percentage, there would be "spinoffs" in terms of a greater production of milk, because of better feeding. Our survey results suggest an increase of 0.36 gallons a day from half a ton of extra D.O.M.

Finally, it would be possible to decrease the percentage of Friesian blood. A herd with 90 percent Friesian blood could be cross-bred to a Jersey, bringing it back to a 60 percent Friesian herd over a number of years. The formula predicts that this 30 percent reduction in Friesian blood would increase S.N.F. percentage by  $30.0 \times .0053$  or 0.16 percent. Because of lower milk production per cow (0.49 gallons less per day from our survey) together with lower beef prices, this more drastic change would invariably increase the cost of milk production.

It is also encouraging to note that the results from worldwide research work on factors affecting S.N.F. percentage have been confirmed by our Christchurch survey.

## RECOMMENDATIONS

Our recommendations from this survey are for farmers to lift their winter S.N.F. percentage above the critical 8.50 level by—

- Firstly, increasing the D.O.M. intake of the herd. Here attention should be paid both to improving the quality of the feed available and also increasing the amount fed. The provision of large quantities of energy-rich feeds is essential, for example autumn-saved or winter-grown grass, leafy lucerne hay and cereal meals when prices permit.
- A sound wintering system for the herd is needed to reduce pasture poaching and feed wastage. This is particularly important on farms with heavy soils or where there is a high watertable in the winter.

- Close attention must be paid to the incidence of both clinical and sub-clinical mastitis.
- Finally, if the above measures prove inadequate then as a last resort it may be necessary to increase the percentage of Jersey blood in the herd. However, before a management change of this magnitude is embarked upon it should be remembered that the Friesian breed has a higher level of production per cow and per acre, easier milk let-down, ease of rearing replacements and a higher market value of both surplus calves and cull cows, therefore a change from Friesian to Jersey-Friesian crosses must be approached with caution. Certainly, as the survey shows, milk quality would be enhanced but in many other respects the move would probably be a financial enigma.

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## The Public Image Of The Vending Industry

WITH THE ADVENT of television has come the use of the word "image" to describe what in effect is the picture in the mind of the viewer of what he sees or thinks he sees.

Whether we like it or not, this "image" is tremendously important in modern life. People engaged in the sale of foodstuffs go to no end of trouble to ensure that their image conveys the impression of cleanliness and strict adherence to the principles of hygiene.

To create this good image costs firms dealing in foodstuffs real money but they realise if they don't create the impression of outstanding cleanliness they lose sales.

As a milk vendor, you are not subject to competition but you do have a responsibility to the consumers and your fellow vendors to ensure that image of the individual vendor is of a person maintaining the highest possible standards of hygiene in food handling.

Broken floor boards on vehicle trays, dirty trays, curtains and doors of canopies not being used in accordance with regulations in that milk is often exposed to daylight, and the stacking of milk on street corners without covers are flagrant breaches of the regulations and do nothing to build an image of a businessman anxious to ensure his product is handled with impeccable standards of hygiene.

You should satisfy yourself that your vehicle is in first-class order, that cano-

pies and curtains are in good condition, and that at all times milk is kept protected from daylight.

Appearance of vehicles is an important factor in building an image of a competent businessman and here we can take a lesson from our friends in the road transport industry. There, all the best firms place a great deal of emphasis on paintwork and general appearance of their trucks.—*Dominion Federation of Milk Vendors Newsletter.*

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## NEW HOLDING TANKS FOR WELLINGTON



The two new stainless steel raw milk silo-type holding tanks being installed by the department engineers at the Wellington City Corporation Milk Department premises in Tory Street, Wellington, early in November last year.

The tanks were fabricated in Hawera by National Dairy Association of N.Z. Ltd. and are 16 feet high, 12 feet in diameter and hold 10,000 gallons each.

For holding inwards raw milk, the tanks are refrigerated and are of triple-skinned construction. Sandwiched between the outer and middle skins of stainless steel is a lining of expanded plastic foam insulation and between this middle skin and the tank's inner skin is the cavity through which flows the distilled water refrigerant.

The tanks are fully equipped with a C.I.P. system and features a safety block which prevents a tank from being filled with milk while it is being cleaned.



# VENDING CHANGES

The following is a list of vendors who have either commenced in, or left, the trade as from 1 October 1971 to the date of going to press.

## INCOMING VENDORS

### AUCKLAND DISTRICT:

D. R. French  
J. L. Proctor  
C. Hira  
D. G. Carr  
R. G. Hunt  
S. C. Fletcher  
M. A. Plester  
W. J. Johanson  
R. W. Faulkner  
J. G. N. Martin  
R. J. Gray  
T. D. Tallentire  
B. W. Judkins, Wellsford  
C. G. R. McGuire  
R. W. Bradley  
B. O. Webb

### HAMILTON DISTRICT:

R. W. & P. M. Purvis, Rotorua  
G. R. Bradford  
O. E. Madgwick, Hauraki Plain  
B. Moore, Ohope  
M. D. Clark, Tokoroa  
M. E. Wiersma, Taupo

### PALMERSTON NORTH DISTRICT

C. J. Goodgame, Napier  
R. H. Topless, Manunui  
K. A. Lord, Hawera  
P. G. Hatwell, Gisborne  
P. G. Birchler, Feilding  
W. S. Cook, Wanganui  
I. W. Scott, Owahango

### WELLINGTON DISTRICT:

D. A. Parsons, Hutt Valley  
K. F. Moore, Hutt Valley

### CHRISTCHURCH DISTRICT:

M. R. Fletcher  
K. W. Lyon  
R. W. Bennett  
D. L. Brailsford

## OUTGOING VENDORS

### AUCKLAND DISTRICT:

D. B. Jarvis  
G. H. Chrisp  
J. I. Newland  
B. R. Geange  
D. W. Rhind  
A. Pallatt  
R. L. Johanson  
R. S. Hughes  
T. H. Davey  
K. C. Pickering  
P. B. Holtom  
J. G. Eaton  
H. J. Bennett  
R. L. Goodman, Wellsford  
J. R. Rule

### HAMILTON DISTRICT:

V. L. McCracken, Rotorua  
Olympus Farms Ltd., Mt. Maunganui  
P. A. Gibbs, Ohope  
J. A. Morrison, Hauraki Plains

### PALMERSTON NORTH:

A. Collins, Napier  
J. Hankey, Gisborne  
R. J. Tangaroa, Taumarunui  
G. R. Topless, Manunui  
J. McRae, Hawera  
P. J. Barratt, Feilding  
J. B. Tunnell, Wanganui

### WELLINGTON DISTRICT:

D. Douglas, Hutt Valley  
J. W. Leitch, Hutt Valley  
CHRISTCHURCH DISTRICT:  
M. Cuff  
J. A. Wolfreys  
M. A. Brown

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FOR BEST lucerne establishment sow it without a companion crop, says the Farm Advisory Division of the Department of Agriculture. The risk of failure in establishment under a cover crop is higher. However, under good conditions cover crops are useful.

# Dietary Sugar and Atherosclerosis

SPEAKING in Copenhagen (November 1971), Professor John Yudkin, Emeritus Professor of Nutrition at Queen Elizabeth College, University of London, described experiments carried out in the Nutrition Department at the college.

He said there was strong evidence that sugar may be an important cause of coronary disease, and that research had shown that it had deleterious effects linking it with several other diseases.

Following is a summary of Professor Yudkin's statement:

The first clue that sugar (sucrose) might be an important cause of coronary disease came from an examination of national and international statistics. These showed that the major dietary characteristic of populations that have had a rapid rise in the prevalence of the disease is a rising consumption of sugar. We have now followed this clue by a number of experiments carried out both in human volunteers and in laboratory animals. The results strongly support the view that dietary sugar is involved in the cause of the disease. In particular our recent work fits much better the known complexities of coronary disease than does the commonly held but over-simplified view that the disease is entirely or largely a matter of a raised level of cholesterol in the blood.

Our subject in these experiments is to see if we can reproduce as many as possible of the large number of abnormalities that are known to be associated with the disease. In young men, we have found that a high sugar diet for two weeks results in not only an increase in the level of cholesterol and other fatty substances in the blood but also a change in the ability of the body to deal with blood glucose. In addition, about 25 per cent. of the men show an increase in the level of the hormones insulin and cortisol in the blood, and an increase in the adhesiveness of the platelets. This last is one

of the measures of the ease with which the blood clots. All of these changes are commonly found in people with coronary diseases.

In rats, too, sugar in the diet produces the same sorts of changes. In addition, it results in an enlargement of the liver and of the kidneys and—more importantly—of adrenal glands.

Dietary sugar also causes in rats an increase in the amount of cholesterol and other fatty materials in the blood, and in the walls of the blood vessels themselves.

An experiment with pigs as yet uncompleted also resulted in an increase in the level of fatty substances and of insulin in the blood. In cockerels, the rise in cholesterol is so great that it causes the blood to appear milky. More important, however, in these animals sugar produces definite atheroma (fatty deposits) in the arteries.

These and many other observations now provide strong evidence not only that sugar may be involved in producing coronary disease in man but also that it has a range of unexpected deleterious effects that link it with several other diseases. Of particular importance is the effect of sugar on some of the glands and hormones of the body.

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## Metric Milk

THE NEW SOUTH WALES Dairy Industry Authority representative on the Australian Decimal Conversion Board, Mr R. K. Warne, announced in late December 1971 that the pint milk bottle would be replaced by containers of 600 millilitres, and that the quart bottle would be replaced by the litre.

Conversion to the metric sizes is to start in the middle of 1973.

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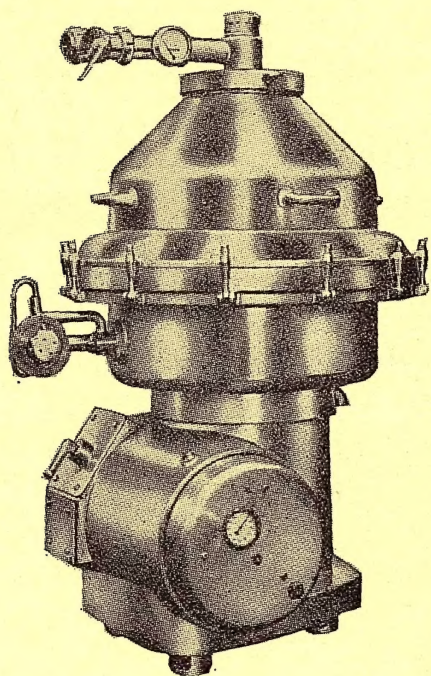
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*will guarantee the quality of your product . . .*



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MRPX 207 - 2200 gal. per hour

MRPX 409 - 4400 gal. per hour

MRPX 413 - 6600 gal. per hour

**For clarification of milk  
and whey, for recovery  
of proteins from whey,  
butter wash water, etc.**

The bowl of the MRPX can be emptied of slime while running at full speed—no labour needed for manual cleaning. You just start a bowl discharge programme by pushing a button on a control panel and the accumulated slime is automatically ejected before it reaches the point where a normal clarifier would have to be shut down for cleaning. This means that the machine can be operated continuously for any length of time, while still maintaining the high efficiency of a clean bowl.

When the time has come for cleaning you just have water and detergents circulated through the machine and "shoot" it clean by a series of bowl discharges. The in-place cleaning of the machine can be arranged individually or in line with other dairy equipment. The control panel for an automatic CIP plant can be arranged to run the cleaning programme of the clarifier as well.

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